4.5 Rail

The North Carolina Railroad between Greensboro and Raleigh is an important transportation link. The communities along the corridor and their economies are growing. Improvements to the railroad are important for mobility, freight movement, and safety. Much of the corridor remains on the alignment laid out in the mid-1800s, which envisioned maximum train speeds of 45 mph. As part of the federally-designated Southeast High Speed Rail Corridor, this segment of railroad will need significant improvements for capacity and speed (NCDOT).

4.5.1 Passenger Rail

Three AMTRAK trains operate through the historic passenger rail terminal in High Point (Carolinian-Piedmont Schedule, 2012) (Crescent Schedule, 2012). Table 4.5-1 shows the trains, scheduled departure time, route and direction of the trains. To support passenger rail service, the Piedmont Authority for Regional Transportation provides connector service from the AMTRAK station to Winston-Salem for trains 73, 74, and 76. Time schedules and fare information are available at: http://www.bytrain.org/docs/5AmtrakConnectorweb.pdf.

Table 4.5-1 Passenger Trains Using the Historic High Point Depot

Train		Departure Time	Route	Direction
Name	Number	(24 hr.)		
Crescent	19	1239	NY-HP-DC-NO	SB
Piedmont	73	0834	Ral-HP-Clt	SB
Piedmont	75	1334	Ral-HP-Clt	SB
Carolinian	79	1848	NY-Ral-HP-CLT	SB
Crescent	20	0316	NO-HP-DC-NY	NB
Carolinian	80	0817	Clt-HP-Ral-NY	NB
Piedmont	74	1314	Ral-HP-Clt	NB
Piedmont	76	1829	Ral-HP-Clt	NB

Figure 4.5-1 slightly different view of the train schedules through High Point. Using a one day format this figure shows the arrival time at High Point for all passenger trains and their arrival times at other stations on their routes.

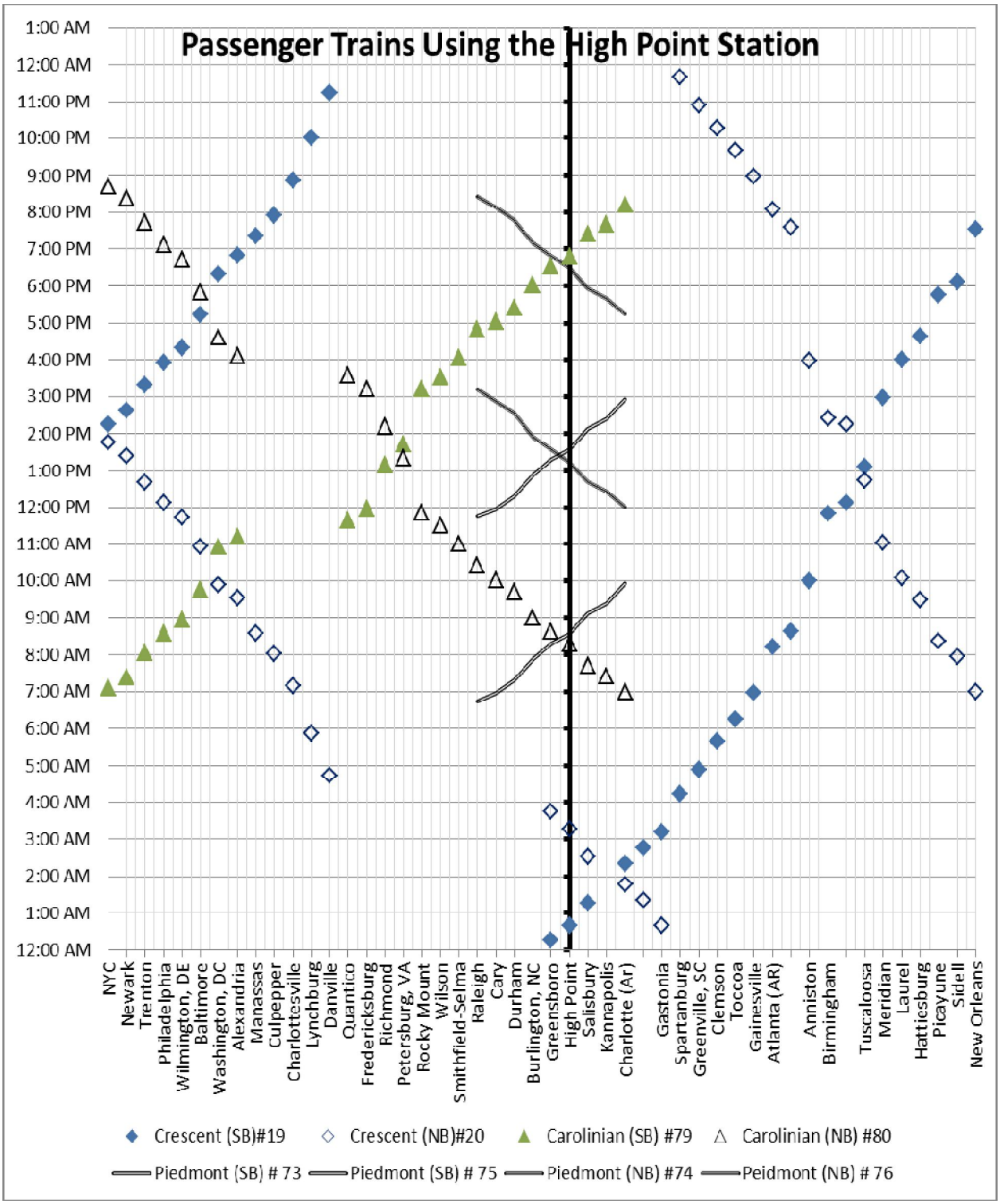

Figure 4.5-1 Passenger Trains and Destinations from the Historic High Point Depot

North Carolina has eighteen passenger rail stations serving three passenger routes. Figure 4.5-2 shows the number of passengers boarding, or alighting, at Triad rail stations through September 30th, 2012 and the growth in rail passengers boarding for stations in the Triad since

2005. Thirty-eight thousand (38,000) passengers boarded trains at High Point in 2012. This is about four percent of rail passengers in the state. Between 2005 and 2012, the number of boardings in High Point rose from eleven thousand to thirty-eight thousand. Some of the increase is attributable to improved service quality (i.e., on-time), some to greater convenience (additional trains), and some to the rising costs of other modes.

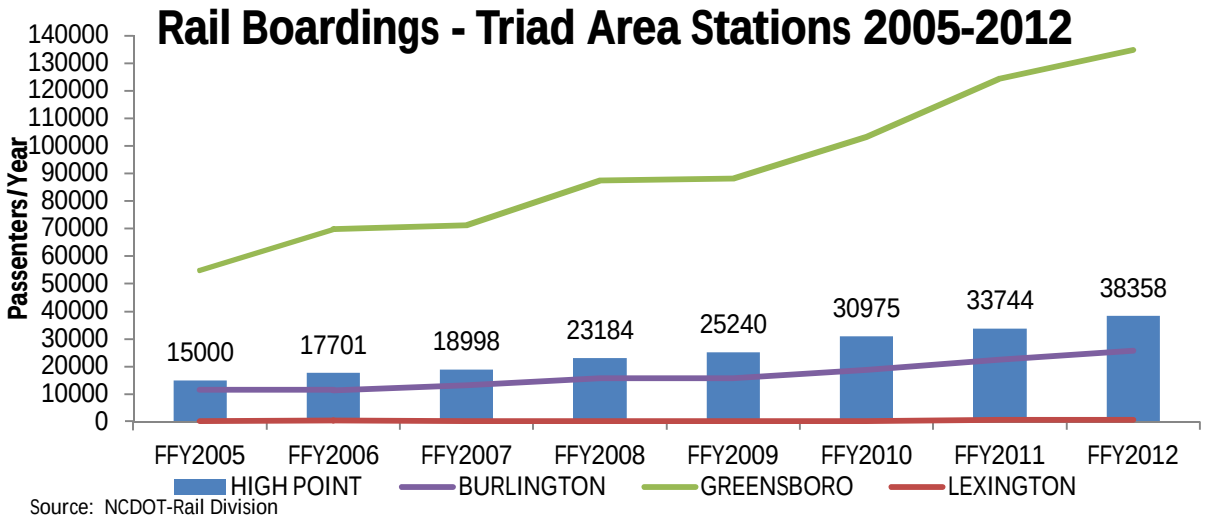

Figure 4.5-2: Rail Passenger Growth at Triad Stations

Figure 4.5-3 shows the passenger boardings at each of North Carolina's seventeen passenger rail stops as well as their percentage of total passengers and their contribution to boardings in the state.

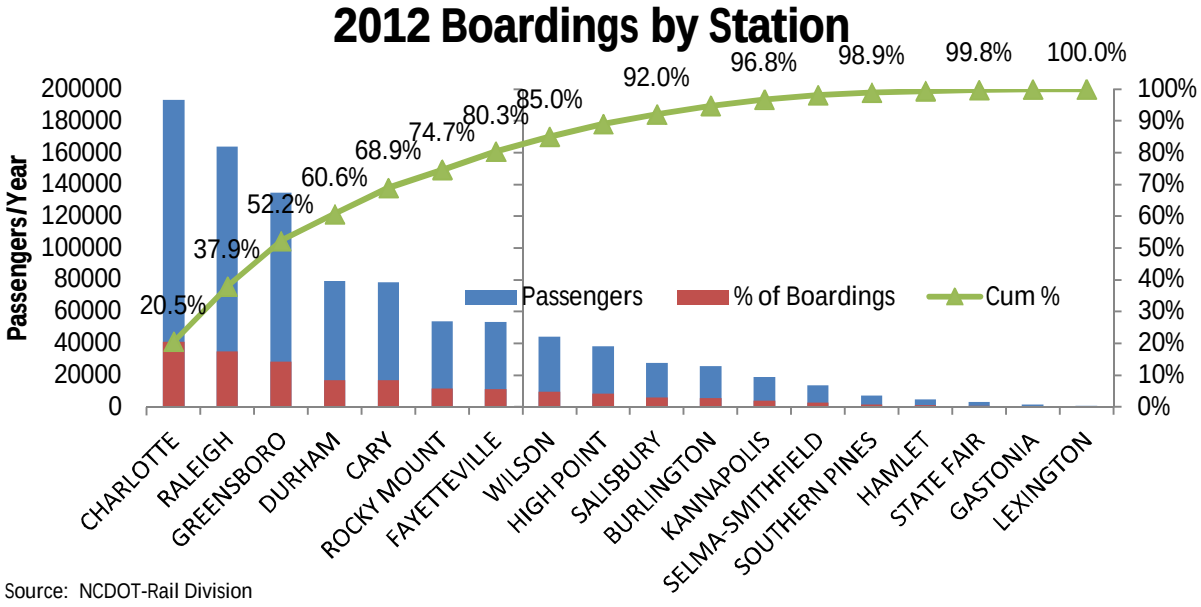

Figure 4.5-3 Station Utilization

4.5.2 High Speed Rail

The Federal Railroad Administration (FRA) has designated the route connecting Washington, DC, Richmond, Raleigh, Greensboro, High Point, and Charlotte as one of the five national high-speed rail corridors. The state of North Carolina has committed to a program of rail infrastructure improvements called IMPACT (Improvement Measures to Provide Alternate Corridor Transportation). The goal of this program is to increase the maximum train speed between Raleigh and Charlotte to 70 mph. This will reduce the travel time between Raleigh and Charlotte from just less than four hours to three hours and 15 minutes.

4.5.3 Rail Freight

The majority of the trains passing High Point are freight trains. The remainder of this section discusses freight rail from a national and regional perspective.

4.5.3.1 National Conditions and Trends

The US freight railroad industry is stable, and growing, after structural changes between 1970 and 2000. The economic growth experienced in recent years has particularly benefited some freight flows, such as containers to and from the major ports, with the result that railroads have been adding or reinstating capacity on their main lines. Although today's railroads focus on unit trains (entire trains of a single commodity, such as coal[1] or containers), the traditional, service (carload freight - single cars or small numbers of cars to/from local industries) remains important.

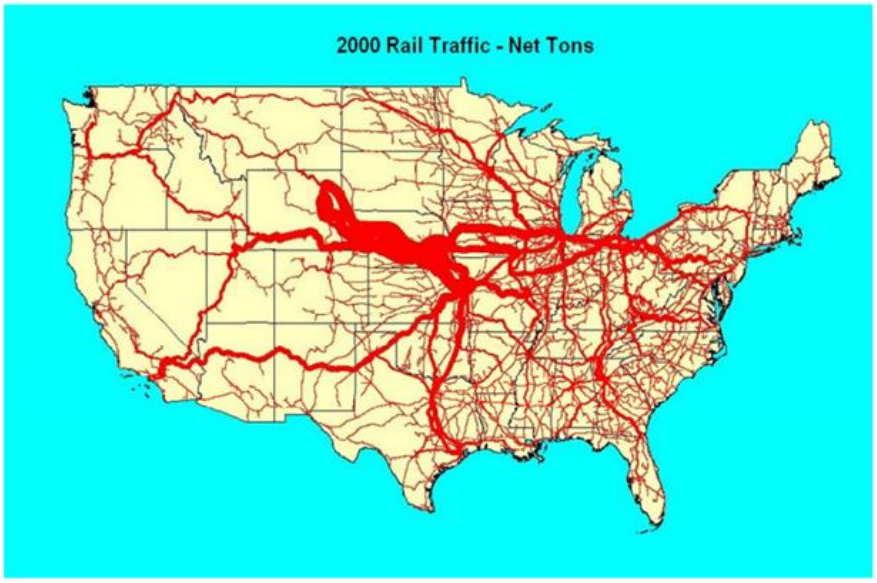

Figure 4.5-4 US Rail Freight Tonnage

Figure 4.5-4 presents the tonnage of US rail shipments. Until recently, bulk products have dominated US rail shipments. Coal accounts for approximately half of US rail tonnage, so that coal shipments dominate the map. Coal's importance is clear once the reader understands that coal from Colorado fuels power plants east of the Mississippi and is a significant part of the exports through the port

[1] John McPhee provides an excellent discussion of unit trains in *Uncommon Carriers*

of Houston. The heavy lines connecting the areas of Los Angeles, Portland and Salem to the east are dominated by container trains moving to Chicago, Saint Louis, and Dallas before being transshipped further east.

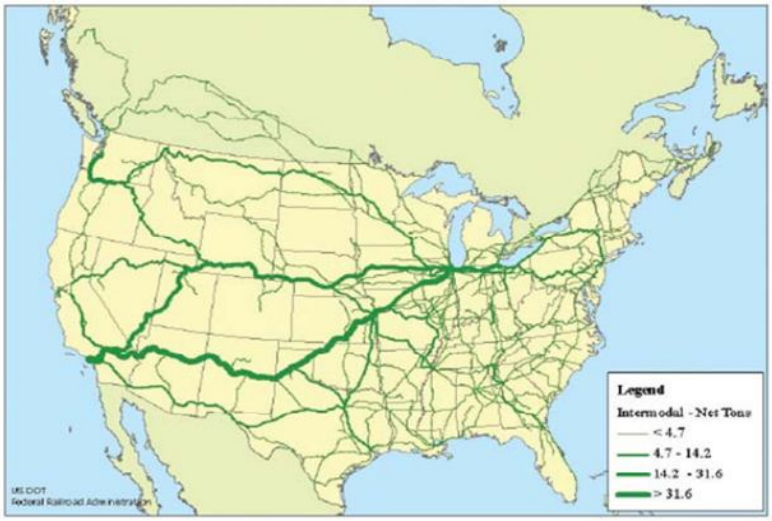

Figure 4.5-5 US Container Freight

Intermodal rail shipments have been growing rapidly. In Figure 4.5-6, several popular intermodal routes are visible, including one from Los Angeles east to the Chicago distribution yards. An increase in intermodal traffic from Mexico north along the NAFTA Corridor is expected should energy cost, urban Chinese wages, or the relative value of Chinese currency increase. Accordingly, a set of rail-based intermodal terminals are developing along that corridor which also serve east-west traffic. (George F. List; Robert Foyle, 2011) Figure 4.5-5 shows major container movements discharging at West Coast Ports. *When the Panama Canal capacity improvements are completed, in 2014, many container movements will probably shift to the East Coast and Gulf Coast for discharge.*

4.5.3.2 Rail Freight: Statewide and Regional Conditions and Trends

The rail network serves 86 of North Carolina's 100 counties. The network provides access to strategic locations, such as ports, power plants, mines, and military installations and facilitates the movement of goods for agriculture, forestry, plastic, furniture, coal, food products, and chemicals.

Table 4.5-2 provides some context for North Carolina's rail system based on 2008 data. Most of North Carolina's rail system is owned, operated and maintained by the private sector. Of 5,767 miles of rail lines in North Carolina, 491 miles are owned by the State.

Table 4.5-2: North Carolina Rail Context

NC Rank	Statistic
13th in number of railroad companies	23
17th in total rail miles	3,250
32nd in originated rail tons	12,086,168
13th in terminated rail tons	58,440,018
13th in originated rail carloads	211,572
14th in terminated rail carloads	665,580
32nd in rail tons carried	103,254,917
34th in rail carloads carried	1,467,318
29th in freight rail employment	2,425

30th in freight rail wages $163.2 Million

The state of North Carolina owns the North Carolina Railroad Company (NCRR), with Norfolk Southern Railroad Company (NS) operating trackage rights over its 317-mile corridor from Charlotte to Morehead City. Table 4.5-3and Figure 4.5-6 show the miles and locations of freight railroads operated in North Carolina, with 2,422 miles of Class I railroads comprising 72.4 percent of all railroads in the state.

Table 4.5-3: Freight Railroads in North Carolina, by Type and Miles, 2011

Railroad Classification	Miles
Class I Railroads	
CSX Transportation	1,121
Norfolk Southern Railroad Company[2]	1301
Subtotal Class I Railroads	2,422
Class III Railroads	
Shortline/local railroads	687
Switching and terminal Railroads	923
Subtotal Class III Railroads	3,345
Total	5,767

Twenty-three freight railroad companies operate in the state:

- Two Class I railroads (CSX Transportation and Norfolk Southern Railroad Company): According to size classifications established by the Surface Transportation Board, a Class I railroad had annual carrier operating revenues of $379 million in 2009.
- Twenty Class III railroads: 12 short line railroads, and 8 other short line railroads that specialize in switching and terminal services. According to the Surface Transportation Board, a Class III railroad is a railway company with annual operating revenue of less than $20.5 million.

Although most short-line railroads operating in the state move freight via box car, tank or flatbed rail cars, an increase in short-line railroad activity will have an impact on transit and transportation flow on our roads and highways at railroad crossings in the state.

The most heavily used freight rail corridors in North Carolina include:

The CSX corridor in western North Carolina serves through freight traffic and connects South Carolina to Tennessee. Coal is the predominate cargo in this corridor.

The CSX corridor in eastern North Carolina, parallels I-95 and connects North Carolina to states from Boston, MA to Miami, FL. This corridor is the CSX north/south mainline and is the backbone of the CSX's National Gateway3intermodal corridor (http://www.nationalgateway.org/news-resources/in-the-news/railroads-redraw-intermodal-map). It also carries Amtrak rail passenger traffic.

[2] This includes Operating Rights on 317 miles of the NCRR.

[3] The National Gateway is intended to create a double-stack cleared, state-of-the-art rail corridor linking East Coast Ports with population and manufacturing centers in the Midwest.

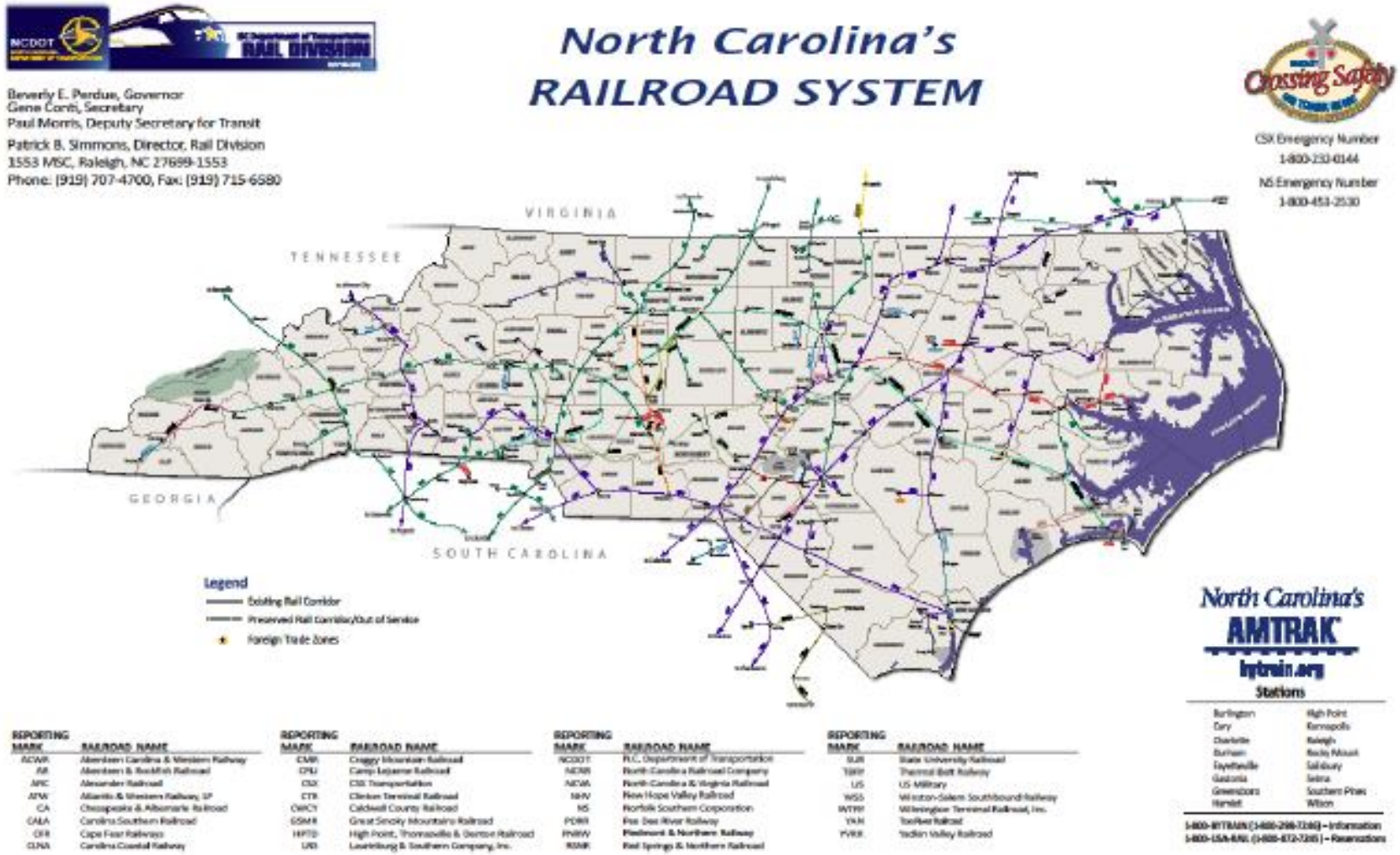

Figure 4.5-6 North Carolina Rail System

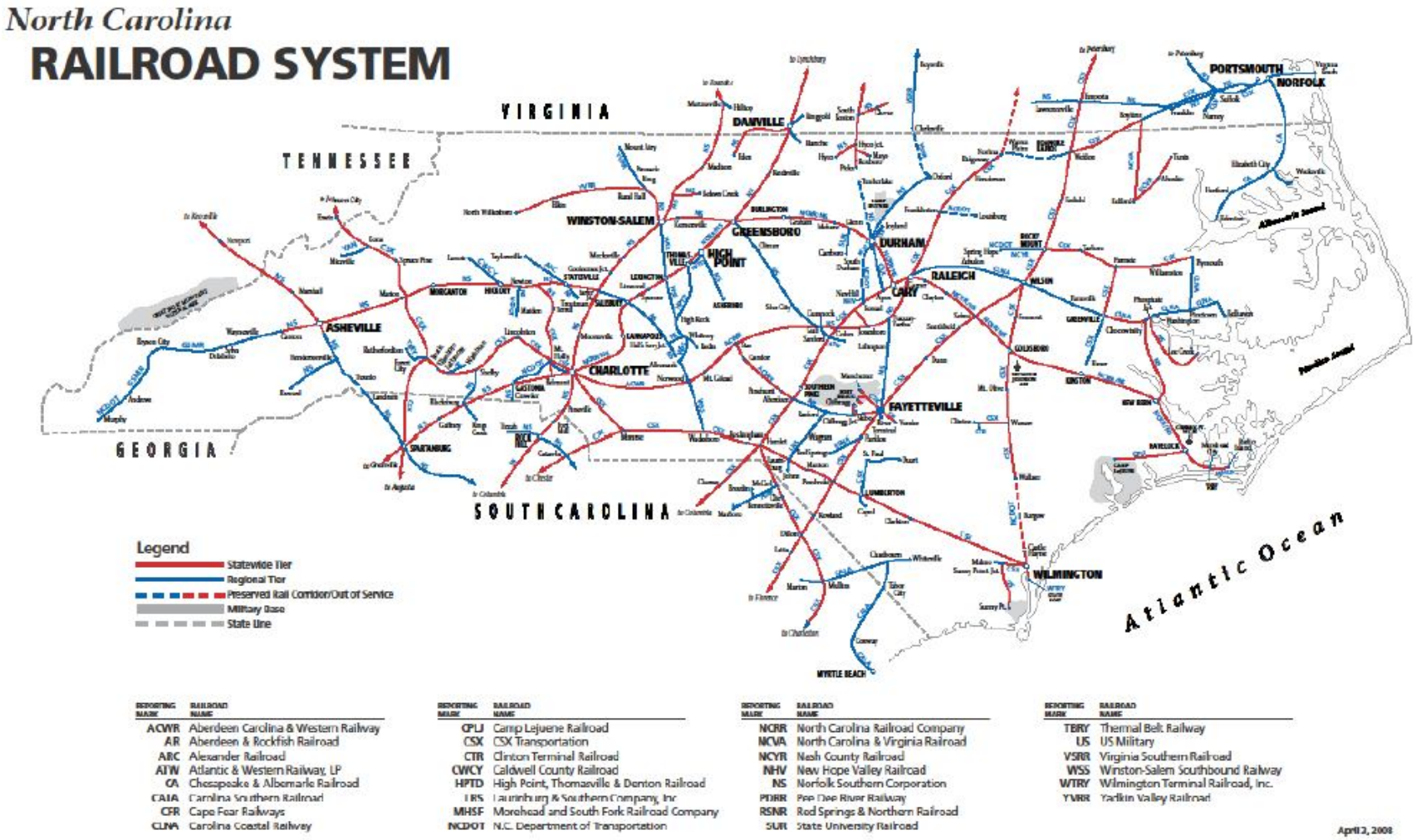

Figure 4.5-7: North Carolina Freight Railroads Multimodal Investment Network

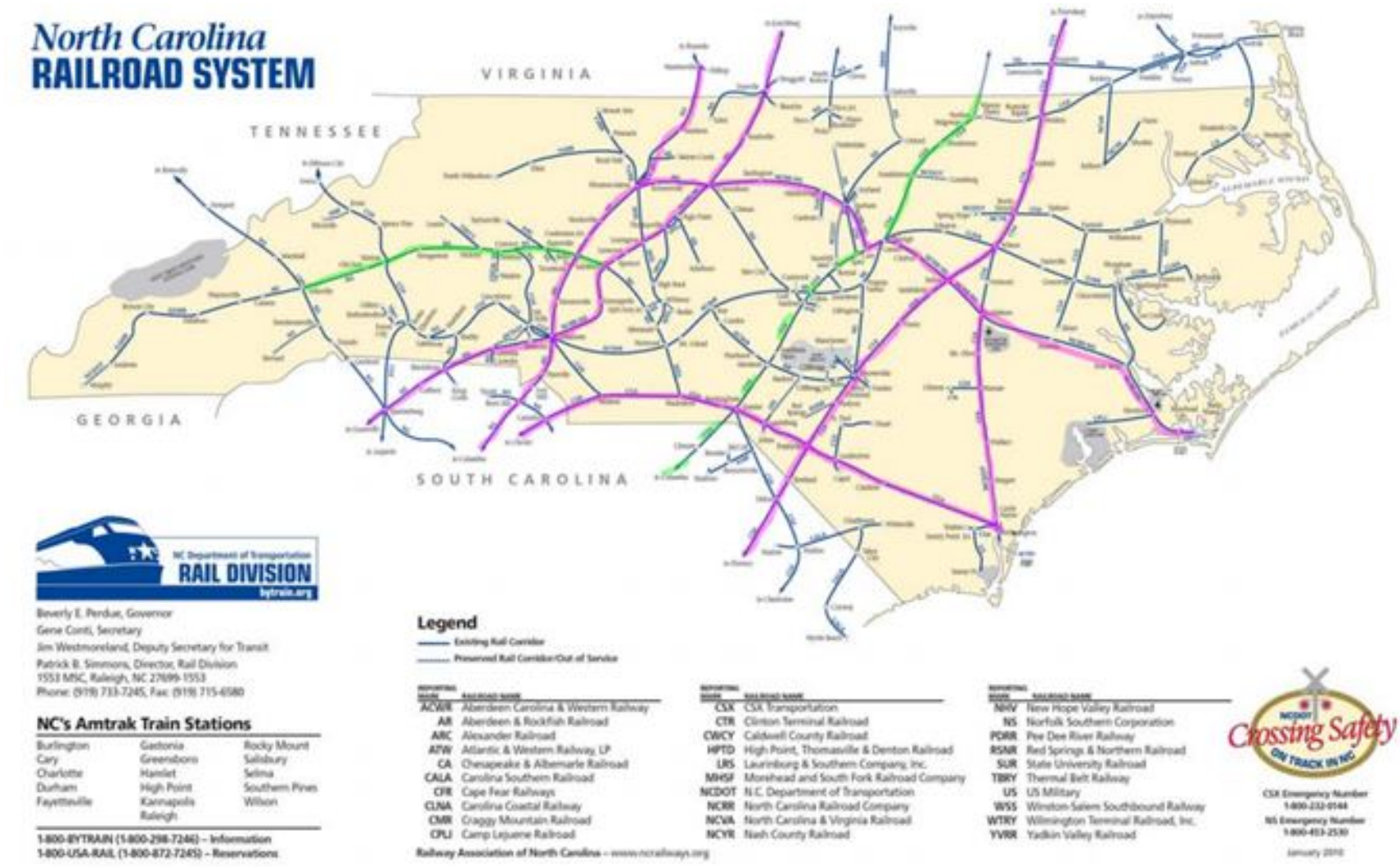

Figure 4.5-8 North Carolina Railroad System with Corridors Marked

The CSX corridor from the Port of Wilmington to Charlotte is part of CSX's National Gateway intermodal corridor. The National Gateway ends in Charlotte, but the corridor extends to Atlanta and points south.

The 317 mile long NCRR corridor runs from the port of Morehead City to Charlotte. The line parallels I-40 and I-85. The Norfolk-Southern (NS) has exclusive trackage rights on the NCRR. Between Charlotte and Greensboro, the NCRR is the NS mainline, which is part of its Crescent Corridor. The corridor is a heavily traveled intermodal corridor connecting New Jersey to New Orleans. This corridor also serves passenger rail and is included in the Southeast High Speed Rail Corridor. North Carolina's Raleigh to Charlotte passenger service (the Piedmont and the Carolinian) uses this corridor as does Amtrak's Crescent from NY to New Orleans, LA.

Despite the strength of these lines, North Carolina is critical to neither the NS nor the CSX. One estimate is that less than 2% of either railroad's revenues are derived from North Carolina shippers. *This implies that the state needs a strategic plan that relies on partnerships with short lines or shared rights-of-way.*

Figure 4.5-8 shows North Carolina's railroad network. The primary interest of CSX lies in its north/south main line stretching from Weldon to Rowland, through Selma and Fayetteville where it intersects with NS. The primary interest of NS is its north-south main line from Lynchburg, VA to Greenville, SC through Charlotte where it intersects with CSX. There are other secondary lines in the state as well as locations served by both CSX and NS: Goldsboro, Colon, and Cary to Raleigh. Arguably, the entire length of the Aberdeen, Carolina, and Western Railway Company is also served by both Class 1 railroads since the ACWR interchanges with both CSX and NS. The same is true for the Carolina Coastal Railway (CLNA) between Raleigh and Wilson and the Aberdeen & Rockfish Railroad (AR).

A tiered network approach to railroad network planning seems needed. There also seems to be value in developing a sense of the types of railroads that would be best to operate what parts of the network – Class 1 railroads versus short lines – and where service by two Class 1 railroads is needed. Figure 6-6 illustrates one realization of this tiered network idea, borrowing from the highway network ideas of interstates, state highways, and local "roads".

North Carolina has two "interstate" quality rail lines (high performance lines). One is the CSX north-south main line from Petersburg, VA, through Rocky Mount, Selma, and Fayetteville to Florence, SC. The other is the NS north-south main line from Lynchburg, VA, through Danville, Greensboro, and Charlotte to Greenville, SC.

North Carolina may want to develop more high performance east-west rail lines. The goal of the east-west line would be to reach the Midwest and the Mississippi River at Memphis and St. Louis. One choice is the CSX east-west main line from Wilmington, through Monroe, Charlotte, and Marion to Johnson City, TN. It is perfectly straight in the east –it has the longest stretch of tangent (straight) track in the US – however, steep grades and crooked trackage in western

North Carolina limit speed through the Blue Ridge Mountains. It is used there primarily to bring coal out of the Appalachians. Improving the alignment to main line standards would be expensive and require work in two states. Another option involves a combination of the CSX east-west main line from Wilmington through Monroe, and not Charlotte, to Chester (SC) and then back into North Carolina via NS from Spartanburg, SC, through Asheville into Tennessee. Upgrading this line would be expensive and would include returning the Saluda Grade to service. What might make the most sense would be to use the CSX main line from Wilmington through Monroe to Chester, SC and not attempt to create an in-state route through the North Carolina Mountains. Two other options make sense, both on NS. One route is from Morehead City west through Raleigh to Greensboro, and then north to Lynchburg, VA. The second is similar: from Morehead City west through Raleigh and Greensboro to Winston-Salem, and then north to Roanoke Virginia.

In a third tier are the rest of the rail lines shown in Figure 4.5-8. These would have a local focus, either for short hauls or pick-up and delivery to and from shippers and consignees. Short lines might best operate the third tier rail network. These short line operators might be local to the state or subsidiaries of national holding companies. Shortline Railroads provide frequent service using shorter trains and are invested in the success of the local businesses.

Railroads normally operate trains only on tracks owned, or leased by that railroad. Railroads charge fees for hauling freight in other brand cars. A challenging, but valuable idea is to treat the second and third tier lines as public rights-of-way over which any rail carrier can operate. Robert L. Banks and others suggested this in the 1970's. The goal of this strategy is to achieve a high-quality service to the major industrial locations in the state at better rates from the railroads that operate over these lines. The shared use idea has not been popular except in limited cases where governments have argued successfully before the Surface Transportation Board (and the earlier Interstate Commerce Commission) to provide trackage rights for multiple carriers over a particular rail line. Shared use trackage could lead to more competitive rail rates and higher quality service to the ports of Wilmington and Morehead City and to strategic development locations such as Global TransPark[4].

Several specific improvements that seem helpful from a logistics perspective surfaced during the review conducted for this project. They include:

- Restoring the line from Wallace to Castle Hayne,
- Building a wye (triangular junction) in Pembroke,
- Getting two-carrier service to both the State ports (Shell, 2006),
- Completing the wye on the branch that services MOTSU (Military Ocean Terminal at Sunny Point),

[4] Houston Power & Lighting Company built a second rail line to serve a coal-fired generating station in Texas. By introducing competition Houston Power saved $10 Million the first year and gained flexibility and redundancy in their supply chain (Shell, 2006).

- Providing more direct service to the Port of Wilmington, one that eliminates crisscrossing the City of Wilmington multiple times,
- Simplifying the rail alignments through Charlotte, and
- Double tracking sections along the main lines – Greensboro to Raleigh, Charlotte to Greensboro, and along the entire CSX main line.

Smaller improvements such as improving access to Morehead City (including Radio Island), a bigger yard west of Morehead City to help service the port; and reorganizing the tracks in Goldsboro, Raleigh, Greensboro, and Winston-Salem; and bypassing cities like New Bern would also be beneficial.

4.5.3.3 Rail Freight: Condition and Trends in the Piedmont Triad Study Area

Proposed Piedmont Triad Regional Freight Villages[5] based on NC Governors Logistics Task Force – 7 Portals Report

1. Burlington (Alamance County Ind. Dev. Corp./ Burlington/Alamance AP): There is rail service on the north side of the airport, running E-W.
2. Greensboro (Aerotropolis site at PTI): NS trackage is adjacent to the site.
3. Montgomery/Moore (The Heart of NC Mega-site): The site is near the Montgomery Airport; the railroad is near the airport (Aberdeen), about 2 miles from the site; it would be easy to construct a rail spur into the area; there are connections to CSX in Wadesboro and NS, in Albemarle.
4. Winston-Salem (Smith Reynolds Airport): NS trackage is adjacent to the site. (George F. List; Robert Foyle, 2011)
5. Rail freight transportation in the Winston-Salem Urban Area is operated by three different railroads, the Yadkin Valley Railroad, the Winston-Salem Southbound Railway, and the Norfolk Southern Railway.

The Yadkin Valley Railroad Company is owned and operated by Gulf and Ohio Railways of Knoxville, TN and operates in the counties of Forsyth, Stokes, Surry, and Wilkes. The railroad carries forest products, coal, grain, and fiberboard. The Yadkin Valley Railroad has two lines, one from Rural Hall to Mount Airy and one from Rural Hall to North Wilkesboro. Both lines connect to the Norfolk Southern Railway at Rural Hall.

Norfolk Southern Railway (NS) is owned and operated by Norfolk Southern Corporation headquartered in Norfolk, VA. The NS connects Winston-Salem to Roanoke, VA to the north and Greensboro to the east. NS also owns an unused line that connects Winston-Salem with Charlotte. One of the largest commodities carried by the railroad is automobiles. The NS

[5] "a defined area within which all activities relating to transport, logistics and the distribution of goods, both for national and international transit, are carried out by various operators." (George F. List; Robert Foyle, 2011) http://www.ncdot.gov/doh/preconstruct/tpb/research/download/2010-34-0masterfinalreport.pdf

operates an automobile distribution center in Winston-Salem. In 2010, Norfolk Southern announced the expansion of its Triad freight operations with a dedicated double-stack train service to the Triad from the Port of Norfolk. This service will run 6 days per week and continue south to Atlanta. This additional intermodal capacity to/from Norfolk ports will increase the amount of truck movement on the I-85/I-40 corridor within this LRTP's study area as well as the Patterson Street intermodal connector in Greensboro. The impact of the volume is unknown at this point. *However, it is important to understand that with the Panama Canal widening to be completed in 2014, and, the capacity for larger vessels, it brings, coupled with the fact that the Port of Norfolk is the only east coast port with the capacity to handle the large vessels; the Triad stands to gain volume and business.*

Winston-Salem Southbound Railway (WSS) began service in 1910 and is independently operated; however, CSX and Norfolk Southern jointly own all of its stock. WSS connects Winston-Salem and Forsyth County to Lexington, Albemarle, and Wadesboro to the south. The railway operates in Forsyth, Davidson, Stanly, and Anson Counties. The railroad carries grain, sand, gravel, stone, forest products, paper products, coal, coke, cement, clay, fertilizer, chemicals, aluminum, iron, and steel. One of the principal shippers is Ingredion Corporation, manufacturer of corn syrup and related products in Winston Salem. WSS connects with NS in Winston-Salem on the north end and with CSX in Wadesboro on the south end. WSS also connects to High Point, Thomasville, and Denton Railroad (HPTD) and Aberdeen, Carolina, and Western Railroad (ACWR) along the railway. (LRTP of Winston-Salem Area, 2009)

Figure 4.5-9: Double-Stack Train

The High Point, Thomasville & Denton Railroad Co (HPT&D) operates from High Point through Thomasville and Denton to a junction with the Winston-Salem Southbound Railway at High Rock. The company, founded in 1923, is owned by the Winston-Salem Southbound Railway.

The railroad carries forest products, paper products, chemicals, brick, coal, cement, and furniture. Principal shippers are: Thomasville Forest Products of Shale Brick – a division of Lowes Inc.; Carolina Container Corporation of High Point –manufacturer of pulp board; and Georgia Pacific of Denton – chemical manufacturer.

Working with the North Carolina Railroad (NCRR), Norfolk Southern Railway (NS) and CSX Transportation, the NCDOT is upgrading existing rail corridors to improve safety, efficiency and capacity for freight and passenger train services. The first phase of improvements is scheduled along the North Carolina Railroad. The 317 mile long, state-owned corridor links Charlotte, Greensboro, Raleigh, and the state port at Morehead City. Norfolk Southern Railway operates trains along the entire corridor under a lease agreement with NCRR. CSX Transportation shares operation of a portion of the NCRR's corridor between Raleigh and Cary.

At one time, the entire corridor between Greensboro and Charlotte had two tracks. Portions of the second track were removed in the late 1960's. Railroad traffic has increased greatly since then, and additional capacity is now needed. Rebuilding the second track in four separate areas will create a 92-mile stretch of double-track railroad between Greensboro and Charlotte. This long section will increase corridor capacity, improve traffic flow and schedule reliability by allowing freight and passenger trains to meet or pass one another without entering a siding.

NCDOT has been awarded $545 million from the American Recovery and Reinvestment Act to support implementation of Southeast High Speed Rail Corridor (SEHSR). NCDOT anticipates $520 million in improvements between Raleigh and Charlotte to improve speed, reliability, and rail security through the corridor. The goal of the SEHSR corridor upgrade is to allow trains to travel between Charlotte and Washington, D.C. at speeds of 90-110 miles per hour and an average speed of 86 mph. NCDOT's original request was for $5.2 billion, which is the current estimated cost to fully complete SEHSR improvements in the state.

Since the USDOT designated Charlotte to Washington, D.C. as a high-speed rail corridor in 1992, the N.C. Department of Transportation has invested more than $300 million in the state's intercity passenger rail service for renovation and construction of train stations, track work improvements and corridor preservation projects in order to pave the way for high-speed service. The ARRA funding requires projects to meet readiness criteria that will enable them to move to construction in the near term. Corridor wide, the improvements include expanding all single track sections to double track, removing and improving crossings, and station security upgrades.

Greensboro to High Point - (Cox to Hoskins)

This project built an 8.7-mile section of second main track on the old roadbed (east of the existing track) between "Cox" in west Greensboro and near Hoskins Street in High Point. New crossovers will be constructed to allow trains to change tracks quickly at Cox and at Hoskins.

Estimated Cost: $20 million

Construction Schedule: *The Greensboro News & Record* reported that construction was completed in December of 2009, http://www.news-record.com/content/2009/12/16/article/work_ends_to_expand_railroad_tracks_between_greensboro_high_point (Greensboro News and Record, 2009).

The double track section will improve on time reliability, traffic flow, increase capacity and save at least one minute of travel time per train.

Using track and signal improvements, the NCDOT has reduced the travel time between Raleigh and Charlotte by more than 35 minutes since the work began in 2001. In addition to reducing the travel time, the work will increase efficiency and reliability for both freight and passenger trains in the corridor. (*High Point Enterprise*)

4.5.3.4 Rail Freight: National Current and Future Issues

Nationwide forecasts suggest that long-term economic growth will create demand for substantial additional capacity on the main rail corridors – and that the railroad industry will not be able to pay for all that capacity on its own. Public-private partnerships are likely to be a key funding mechanism for achieving the necessary capacity. Railroads are increasingly open to strategies that combine public funding of public benefits (principally reductions in truck traffic) with railroad funding of private benefits. In particular, states and municipalities are increasingly recognizing the public benefit of diverting truck traffic from highways to railroads (LRTP of Rock Hill Fort Area).

FHWA has served as the lead agency on many rail projects because they have more staff resources than the FRA. FHWA is involved in safety improvements as related to railway grade crossings through Section 130 of its Highway Safety Program.

The Rail Safety Improvement Act of 2008 updated safety regulations and authorized the installation of new train control systems on all routes that handle certain classes of hazardous materials. The new regulations take effect at the end of 2015. (Atkins, 2012)

4.5.3.5 Rail Freight: Statewide and Regional Current and Future Issues

The North Carolina General Assembly established the House Select Committee on a Comprehensive Rail Service Plan for North Carolina in 2008 to study development of a comprehensive rail plan. Freight rail needs identified by the committee include rail capacity to promote economic development, better service for the military and ports, accommodating heavier rail cars (286,000 pounds) and addressing rail and highway congestion.

In its 2009 final report, the 21st Century Transportation Committee recommended:

- Using more rail to transport freight
- Investing in rail connections between intermodal facilities and inland ports
- Restoring abandoned rail lines
- Expanding and upgrading passenger, freight, commuter, and short line service

In 2007, the General Assembly instructed the Office of State Budget and Management to develop a Statewide Logistics Plan to address long-term economic, mobility, and infrastructure needs. Freight rail-specific recommendations include:

- Encourage development along the Crescent Rail Corridor (0 to 5 years)
- Retain existing rail corridors; halt track removal (0 to 5 years)
- Support short line improvements (0 to 5 years)
- Coordinate schedules to optimize freight and passenger services (5 to 15 years)
- Create a Charlotte to Wilmington multimodal corridor (5 to 15 years)
- Expand high-use corridor capacity (5 to 15 years)

NCDOT has pursued several initiatives to increase safety on the state's freight rail system. These programs include the Crossing Hazard Elimination Program, Sealed Corridor Program, Private Crossing Safety Initiative, and Safety Oversight Program.

Southeast High-Speed Rail Corridor improvements will benefit freight transportation, double (or triple) tracking will increase the train capacity and freight movement efficiency in the affected areas, and the Sealed Corridor Program will improve trackside safety. Although this funding is to be utilized for increasing the capability of passenger traffic, any upgrades to the rail system in North Carolina will benefit freight movement as both passenger and freight trains operate on the same tracks.

Strategic freight rail transportation initiatives will benefit freight rail. These efforts include the NS Crescent Corridor, the CSXT National Gateway, the doubling of the CSXT intermodal yard in Charlotte and the relocation of the NS intermodal yard in Charlotte. The NS intermodal yard relocation is a $100 million joint venture among NS, the state, the City of Charlotte, the federal government, and the Charlotte Douglas International Airport. These initiatives will improve efficiency and cost-effectiveness of the freight rail network.

Works Cited

Greensboro News and Record. (2009, December 16). Retrieved October 24, 2012, from news-record.com: http://www.news-record.com/content/2009/12/16/article/work_ends_to_expand_railroad_tracks_between_greensboro_high_point

(2011). *NC Governor's Logistics Task Force: 7 Portals Report.* Raleigh, NC: NCDOT.

Carolinian-Piedmont Schedule. (2012, May 7). Retrieved November 6, 2012, from AMTRAK. COM: http://www.amtrak.com/ccurl/487/585/Carolinian-Piedmont-Schedule-050712,0.pdf

Crescent Schedule. (2012, May 7). Retrieved November 6, 2012, from AMTRAK. COM: http://www.amtrak.com/ccurl/287/33/Crescent-Schedule-050712,0.pdf

Atkins. (2012, August). *NCDOT 2040 Plan: System Inventory and Modal Needs.* North Carolina Department of Transportation. Raleigh, NC: NCDOT.

George F. List; Robert Foyle. (2011). *Seven Portals Study: An Investigatoin of How Economic Development Can be Encouraged in North Carolina Through Infrastruture Investment -*

Master Report. North Carolina State University, Department of Civil, Construction and Environmental Engineering. Raleigh, NC: North Carolina State Unviersity.

NCDOT. (n.d.). *Track Improvements*. Retrieved October 18, 2012, from NCDOT Rail Division: http://www.bytrain.org/track/rghgro.html

Shell, G. R. (2006). The Sixt Foundation: Leverage. In G. R. Shell, *Bargaining for Advantage: Negotiation Strategies for Reasonable People. 2nd Edition* (p. 91). New York: The Penguin Group.